

INTRODUCTION

Spitfire '40 is not only the closest you're likely to come to flying one of the most famous aircraft of all times—it's a spectacular war-time adventure too.

Picture the scene—it is the Summer of 1940 and you are a newly trained pilot, posted to a Spitfire Squadron somewhere in the South East of England.

Like so many of those young men in 1940, you will learn that a Spitfire is no ordinary plane. You will discover its special capabilities and, most of all, how to handle it in combat. As you learn, you can save your growing experience on cassette. With practice and your increasing skill, you can rise through the ranks, gaining medals, to reach for the highest accolade—to achieve the rank of Group Captain and the coveted VC, DSO and DFC medals.

Spitfire '40 gives you not just valuable experience in the principles and techniques of flight and combat; it's a lot of fun, too!

LOADING SPITFIRE '40

When loaded, you will then be asked:

ORIGINAL LOG

SAVED LOG

Use joystick and fire to make your choice.

You will be shown a list of pilots' names on the flight log. Choose your pilot by moving the joystick and pressing fire.

The log of the pilot you have chosen will be shown, including his rank, medals, flying hours and victories.

Press fire and you will then see a menu of **FLIGHT MODES**:

PRACTICE

COMBAT

COMBAT PRACTICE

Make your selection with joystick and fire.

FLIGHT MODES

PRACTICE

This option puts you into the cockpit at the take off point on the runway to enable you to practice flying your Spitfire before you head off into combat. If you can then land successfully on a runway, you can save your log on cassette to start building up your experience. To save, follow the screen instructions and then press **RETURN**.

COMBAT

This mode is the heart of the program. On selection, you will be given your combat instructions, eg:

ENEMY 3 (No. of aircraft).

INTERCEPT 14 (The distance in miles).

BEARING 200 (The bearing from the runway).

HEIGHT 6000 (The enemy's height).

Now you must take off and engage the enemy in combat. The enemy will remain at roughly the height first given in the combat instructions. If you are successful and return to a runway safely, you can save your combat record.

COMBAT PRACTICE

The purpose of this option is to enable you to gain some elementary experience in handling the Spitfire in combat. You will find yourself at 10,000 feet with enemy aircraft coming at you in frontal attacks. Practice following and firing at them, allowing for deflection shooting, which requires you to judge where the enemy will be by the time your bullets have reached the target.

Your successes in combat practice are not recorded and you can return to the main menu by pressing RETURN or by crashing.

INSTRUMENT PANEL

Clockwise from the upper left of the panel, the instruments are:

FUEL GAUGE: indicates the amount of fuel remaining. You have enough for 45 minutes' flying.

AIR SPEED INDICATOR: Indicates air speed in units of 100 mph. An indicator on this gauge shows the stall speed.

ARTIFICIAL HORIZON: Represents the view from the cockpit, with blue for the sky and brown for the ground. The Spitfire's attitude is indicated.

VERTICAL SPEED INDICATOR (VSI): Represents vertical speed and vertical movement at intervals of 1000 feet per minute in the climb or descent section.

ENGINE REV INDICATOR: This indicates the engine speed in 100's of revolutions per minute.

SLIP & TURN INDICATOR: The top needle represents the sideways movement through the air (slip). The bottom needle measures the rate of turn; the more displaced the needle, the higher the rate of turn.

COMPASS: Indicates compass heading.

ALTIMETER: Shows height above the ground. The large needle indicates 100's of feet and the small needle 1000's of feet.

The instrument panel view is a faithful reproduction of that in the original Spitfire. However, two additional instruments have been included for ease of use:

RUDDER INDICATOR (above compass): Shows the position of the rudder.

PITCH INDICATOR (bottom left): Represents a sideways view of the Spitfire. Although this duplicates part of the function of the artificial horizon, it does also assist orientation when diving or climbing steeply.

AIRCRAFT CONTROLS

JOYSTICK

The basic joystick controls are as follows:

Pulling the joystick backwards will raise the nose of the aircraft; pushing the joystick forward lowers it. The sideways movement of the joystick controls the ailerons, which in turn will make the Spitfire roll or bank to the left or right. A secondary effect of rolling is that it causes the aircraft to turn and change direction. The joystick fire button activates the eight Browning machine guns.

The aircraft's joystick is self-centring when the computer's joystick is in the central position.

You should be aware that there is an inevitable time lag between the movement of the joystick and the reaction of the aircraft, particularly when applying an opposite correction such as reversing the joystick when rolling the aircraft back to straight and level flight after completing a turn.

THE MAP: The map is a representation of the South East of England. A red aircraft symbol indicates the Spitfire's current position, and a black aircraft symbol shows the position of the enemy. The three squares represent areas which can be examined in greater detail.

Looking at the map also has the effect of freezing the simulation and can therefore be used as a pause key.

If the Spitfire is within one of the three squares, then pressing N will show the ground in detail; further presses will first expand the area, and then contract it. Ground detail is shown in a position relative to the Spitfire's current heading.

COCKPIT VIEW

When the Spitfire is below 800 feet, you will see a thin black line at the bottom right hand corner of the screen. This is an indication of your height when close to the ground.

At the bottom of the screen there are white dots on either side of the cockpit. The left-hand dot indicates speed, whilst the right-hand dot indicates rudder position.

CHECKLIST

- 1) Flaps up.
- 2) Push throttle to give power of 1,800 rpm.
- 3) Brakes off.
- 4) Increase power to 3,200 rpm.
- 5) As speed approaches 90 mph switch to cockpit view.
- 6) Ease gently back on the joystick.
- 7) When the Spitfire lifts off, retract undercarriage. Check the instrument panel to see that the red light is on.
- 8) Do not attempt a steep climb until the speed is over 140 mph.
- 9) After completing your climb, reduce cruising power to around 2,900 rpm for cruising speed and level flight.

COMBAT

It is important to understand something of the air combat techniques that were relevant in 1940.

There were four golden rules in air combat:

- 1) Climb quickly to give yourself a height advantage in attack. This enabled the pilot to climb away after an attack, as the speed gained in diving could be translated into momentum to regain height.
- 2) Never fly straight and level in the combat zone for more than a few seconds—weave about as much as possible. This increased the areas of the sky

observed and made the Spitfire a moving rather than a static target. The key was to watch your mirror constantly.

- 3) In reality, attacks usually came from the rear and at an angle. To evade these, it was necessary to turn as sharply as possible towards the direction of attack, increasing speed if possible. Turning in the opposite direction would place the defender in a stationary position in relation to the attacker.

More often than not, air combat ended up as a dog-fight with two aircraft trying to out-turn each other in ever-tightening circles, inevitably reducing height. Maintaining accurate turns was therefore a vital factor.

- 4) Another method of escaping attack was to dive away. In 1940, this was an option open to the enemy fighters but not to the Spitfire. In the Spitfire, pushing the nose forward caused the engine to cut (under negative G) and valuable seconds were lost, whereas enemy fighters did not suffer this problem. This is the reason why films of the period will show Spitfires rolling on to their backs before diving (hence maintaining positive G). Such problems do not occur in this program.

SIMULATION COMBAT

In Spitfire 40, the enemy appear in different colours; each colour indicates different speed and skills. They will also appear in different positions, flying at a variety of speeds. Some may be approaching, and some flying away; you will have to vary your tactics accordingly.

The key rules of air combat have been built into the simulation.

If you are under attack from behind, the enemy aircraft will appear in the mirror. Try to increase speed to escape and turn as sharply as possible. Use your rudder to induce slip or skid.

If you lose contact with the enemy during combat, get back to the height of the original contact and check the map. In keeping with one of the key rules, a climbing turn is preferable in regaining height.

There is a much higher chance of hitting an enemy aircraft the closer you are to it.

If you manage to shoot some or all of the enemy aircraft down, you can return to a runway and, on landing safely, save your latest status.

FLIGHT CHECK LIST FOR YOUR SPITFIRE

TAKE OFF

- 1) Brakes off.
- 2) Engine revs at 3,400 rpm.
- 3) Lift off at 90 mph.
- 4) Retract gear.

LANDING APPROACH

- 1) Reduce speed to 140 mph.
- 2) Lower flaps and gear.
- 3) Final approach between 80 mph and 100 mph.

OPTIMUM CLIMB

Varies with height:

200 mph at 2,850 rpm giving 2,500 ft per minute
